RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/532,197_

Source: _PCT_

Date Processed by STIC: _2/9/06_

ENTERED

CRF Errors Edited by the STIC Systems Branch

Serial Number: _10/532,197_   CRF Edit Date: _2/9/06_
                                   Edited by: _hv_

____ Realigned nucleic acid/amino acid numbers/text in cases where the sequence
text "wrapped" to the next line

____ Corrected the SEQ ID NO. Sequence numbers edited were:

_____

____ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID
NO's edited:

_____

____ Deleted: ___ invalid beginning/end-of-file text ; ___ page numbers

____ Inserted mandatory headings/numeric identifiers, specifically:

_____

____ Moved responses to same line as heading/numeric identifier, specifically:

_____

____ Other: _Sequence 1 corrected amino acid numbering_

_____

_____

Revised 09/09/2003

PCT

```
          RAW SEQUENCE LISTING                    DATE: 02/09/2006
          PATENT APPLICATION:  US/10/532,197      TIME: 18:29:57

          Input Set : A:\PTO.AMC.txt
          Output Set: N:\CRF4\02092006\J532197.raw
```

```
       4 <110> APPLICANT: Biogen Idec MA Inc.
       5        Prentice, Holly
       7 <120> TITLE OF INVENTION: HIGH EXPRESSION LOCUS VECTOR BASED ON
       8        FERRITIN HEAVY CHAIN GENE LOCUS
      11 <130> FILE REFERENCE: 2159.058PC01/EKS/LMB
C-->  13 <140> CURRENT APPLICATION NUMBER: US/10/532,197
C-->  13 <141> CURRENT FILING DATE: 2005-04-21
      13 <150> PRIOR APPLICATION NUMBER: PCT/US2003/033433
      14 <151> PRIOR FILING DATE: 2003-10-22
      16 <150> PRIOR APPLICATION NUMBER: US 60/421,252
      17 <151> PRIOR FILING DATE: 2002-10-24
      19 <160> NUMBER OF SEQ ID NOS: 41
      21 <170> SOFTWARE: FastSEQ for Windows Version 4.0
      23 <210> SEQ ID NO: 1
      24 <211> LENGTH: 563
      25 <212> TYPE: DNA
      26 <213> ORGANISM: Rattus norvegicus
      28 <220> FEATURE:
      29 <221> NAME/KEY: CDS
      30 <222> LOCATION: (346)...(459)
      32 <400> SEQUENCE: 1
      33 agctcagaga cccaagagcc gcctcacaat cacacaggct cctccccgcc cacgcactgc     60
      34 tggcttgggc aacacgccta caggaagagg cggggctggg cggcccaccg cgctgattgg    120
      35 ccggagcgcg cctgacgcag gatcccgcta taaagtgcgg cccgctggtc cctacgccag    180
      36 acgttctcgc ccagagtcgc cgcggtttcc tgcttcaaca gtgcttgaac ggaacccggt    240
      37 gctcgacccc tccgaccccc gtccggccgc tttgagcctg agccctttgc aacttcgtcg    300
      38 ctccgccgct ccagcgtcgc ctccgcgcct cgtccagccg ccatc atg acc acc gcg    357
      39                                                    Met Thr Thr Ala
      40                                                    1
      42 tct ccc tcg caa gtg cgc cag aac tac cac cag gac tcg gag gct gcc       405
      43 Ser Pro Ser Gln Val Arg Gln Asn Tyr His Gln Asp Ser Glu Ala Ala
      44   5               10                  15                  20
      46 atc aac cgc cag atc aac ctg gag ttg tat gcc tcc tac gtc tat ctg       453
      47 Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser Tyr Val Tyr Leu
      48                 25                  30                  35
      50 tcc atg gtgagtgcgg cctggccttt gcggggcgg aaagagggtg cggcctggcc      509
      51 Ser Met
      54 tcccttgggc cacttggtga gctggcggag ggtgggttgg ggcgtggctg cggg          563
      56 <210> SEQ ID NO: 2
      57 <211> LENGTH: 38
      58 <212> TYPE: PRT
      59 <213> ORGANISM: Rattus norvegicus
      61 <400> SEQUENCE: 2
```

```
62 Met Thr Thr Ala Ser Pro Ser Gln Val Arg Gln Asn Tyr His Gln Asp
63  1               5                   10                  15
64 Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser
65              20                  25                  30
66 Tyr Val Tyr Leu Ser Met
67          35
69 <210> SEQ ID NO: 3
70 <211> LENGTH: 563
71 <212> TYPE: DNA
72 <213> ORGANISM: Rattus norvegicus
74 <400> SEQUENCE: 3
75 cccgcagcca cgccccaacc caccctccgc cagctcacca agtggcccaa gggaggccag      60
76 gccgcaccct ctttccgccc ccgcaaaggc caggccgcac tcaccatgga cagatagacg     120
77 taggaggcat acaactccag gttgatctgg cggttgatgg cagcctccga gtcctggtgg     180
78 tagttctggc gcacttgcga gggagacgcg gtggtcatga tggcggctgg acgaggcgcg     240
79 gaggcgacgc tggagcggcg gagcgacgaa gttgcaaagg gctcaggctc aaagcggccg     300
80 gacgggggtc ggaggggtcg agcaccgggt tccgttcaag cactgttgaa gcaggaaacc     360
81 gcggcgactc tgggcgagaa cgtctggcgt agggaccagc gggccgcact ttatagcggg     420
82 atcctgcgtc aggcgcgctc cggccaatca gcgcggtggg ccgcccagcc ccgcctcttc     480
83 ctgtaggcgt gttgcccaag ccagcagtgc gtgggcgggg aggagcctgt gtgattgtga     540
84 ggcggctctt gggtctctga gct                                            563
86 <210> SEQ ID NO: 4
87 <211> LENGTH: 232
88 <212> TYPE: DNA
89 <213> ORGANISM: Rattus norvegicus
91 <220> FEATURE:
92 <221> NAME/KEY: CDS
93 <222> LOCATION: (51)...(197)
95 <400> SEQUENCE: 4
96 gcatctgcct tgctgtgggg atcaataaca aatacccttt ccactttcag tct tgt         56
97                                                           Ser Cys
98                                                            1
100 tat ttt gac cgg gat gat gtg gcc ctg aag aac ttt gcc aaa tac ttt       104
101 Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe
102          5                   10                  15
104 ctc cat caa tct cat gaa gag agg gaa cat gct gag aaa ctg atg aag       152
105 Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys
106          20                  25                  30
108 ctg cag aac cag cga ggt gga cga atc ttc ctg cag gat atc aag         197
109 Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys
110  35                  40                  45
112 gtaagtagac tatgggactg cgttaaatga gcagt                              232
114 <210> SEQ ID NO: 5
115 <211> LENGTH: 49
116 <212> TYPE: PRT
117 <213> ORGANISM: Rattus norvegicus
119 <400> SEQUENCE: 5
120 Ser Cys Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys
121  1               5                   10                  15
```

RAW SEQUENCE LISTING   DATE: 02/09/2006
PATENT APPLICATION: **US/10/532,197**   TIME: 18:29:57

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
122 Tyr Phe Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu
123             20                  25                  30
124 Met Lys Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile
125         35                  40                  45
126 Lys
129 <210> SEQ ID NO: 6
130 <211> LENGTH: 232
131 <212> TYPE: DNA
132 <213> ORGANISM: Rattus norvegicus
134 <400> SEQUENCE: 6
135 actgctcatt taacgcagtc ccatagtcta cttaccttga tatcctgcag gaagattcgt    60
136 ccacctcgct ggttctgcag cttcatcagt ttctcagcat gttccctctc ttcatgagat   120
137 tgatggagaa agtatttggc aaagttcttc agggccacat catcccggtc aaaataacaa   180
138 gactgaaagt ggaaagggta tttgttattg atccccacag caaggcagat gc           232
140 <210> SEQ ID NO: 7
141 <211> LENGTH: 764
142 <212> TYPE: DNA
143 <213> ORGANISM: Rattus norvegicus
145 <220> FEATURE:
146 <221> NAME/KEY: CDS
147 <222> LOCATION: (34)...(159)
149 <221> NAME/KEY: CDS
150 <222> LOCATION: (252)...(413)
```
W--> 152 <400> 7
```
153 ctgcagatga attgacatgt ttctttgatt cag aaa cct gac cgt gat gac tgg    54
154                                     Lys Pro Asp Arg Asp Asp Trp
155                                      1               5
157 gag agc ggg ctg aat gca atg agg tgt gca ctg cac ttg gaa aag agt   102
158 Glu Ser Gly Leu Asn Ala Met Arg Cys Ala Leu His Leu Glu Lys Ser
159          10                  15                  20
161 gtg aat cag tca cta ctg gaa ctt cac aaa ctg gct act gac aag aat   150
162 Val Asn Gln Ser Leu Leu Glu Leu His Lys Leu Ala Thr Asp Lys Asn
163      25                  30                  35
165 gat ccc cac gtgagtatca gaaacacggg gtgagtggag atgatttgcc           199
166 Asp Pro His
167  40
169 acagggcttg ggagagctga ccagtaaccc tgtcccatgt tctctttcct ag tta tgt   257
170                                                           Leu Cys
173 gac ttc att gag acg cat tac ctg aat gag cag gtg aaa tcc att aaa   305
174 Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys Ser Ile Lys
175  45                  50                  55                  60
177 gaa ctg ggt gac cac gtg acc aac tta cgc aag atg gga gcc cct gaa   353
178 Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly Ala Pro Glu
179              65                  70                  75
181 tct ggc atg gca gaa tat ctc ttt gac aag cac acc ctg gga cac ggt   401
182 Ser Gly Met Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly His Gly
183          80                  85                  90
185 gat gag agc taa gctgacgtcc ccaaggccat gtgactttac tggctcactg        453
186 Asp Glu Ser *
```

```
187          95
189 aggcagtgca tgcatgtcag gctgccttta tcttttctat aagttgcacc aaaacatctg   513
190 cttaaaagtt ctttaatttg taccatttct tcaaataaag aattttggta cccagctctt   573
191 gttgtgattg aggatgagcg caccagcttc ccttgcgtcg gctatataac cacactgcaa   633
192 cgcctgaaag aatatttatt aaactcgtag ttggggaaag atagtgaaag acaggtgtgt   693
193 tcagacagga ctaagcagtc ctggttctga gttacctgcc agactgccat gggaacatat   753
194 tcttgagtgt c                                                         764
196 <210> SEQ ID NO: 8
197 <211> LENGTH: 42
198 <212> TYPE: PRT
199 <213> ORGANISM: Rattus norvegicus
201 <400> SEQUENCE: 8
202 Lys Pro Asp Arg Asp Asp Trp Glu Ser Gly Leu Asn Ala Met Arg Cys
203  1               5                  10                  15
204 Ala Leu His Leu Glu Lys Ser Val Asn Gln Ser Leu Leu Glu Leu His
205             20                  25                  30
206 Lys Leu Ala Thr Asp Lys Asn Asp Pro His
207         35                  40
209 <210> SEQ ID NO: 9
210 <211> LENGTH: 53
211 <212> TYPE: PRT
212 <213> ORGANISM: Rattus norvegicus
214 <400> SEQUENCE: 9
215 Leu Cys Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys Ser
216  1               5                  10                  15
217 Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly Ala
218             20                  25                  30
219 Pro Glu Ser Gly Met Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly
220         35                  40                  45
221 His Gly Asp Glu Ser
222     50
224 <210> SEQ ID NO: 10
225 <211> LENGTH: 764
226 <212> TYPE: DNA
227 <213> ORGANISM: Rattus norvegicus
229 <400> SEQUENCE: 10
230 gacactcaag aatatgttcc catggcagtc tggcaggtaa ctcagaacca ggactgctta    60
231 gtcctgtctg aacacacctg tctttcacta tctttcccca actacgagtt taataaatat   120
232 tctttcaggc gttgcagtgt ggttatatag ccgacgcaag ggaagctggt gcgctcatcc   180
233 tcaatcacaa caagagctgg gtaccaaaat tctttatttg aagaaatggt acaaattaaa   240
234 gaacttttaa gcagatgttt tggtgcaact tatagaaaag ataaaggcag cctgacatgc   300
235 atgcactgcc tcagtgagcc agtaaagtca catggccttg gggacgtcag cttagctctc   360
236 atcaccgtgt cccagggtgt gcttgtcaaa gagatattct gccatgccag attcaggggc   420
237 tcccatcttg cgtaagttgg tcacgtggtc acccagttct ttaatggatt tcacctgctc   480
238 attcaggtaa tgcgtctcaa tgaagtcaca taactaggaa agagaacatg ggacagggtt   540
239 actggtcagc tctcccaagc cctgtggcaa atcatctcca ctcaccccgt gtttctgata   600
240 ctcacgtggg gatcattctt gtcagtagcc agtttgtgaa gttccagtag tgactgattc   660
241 acactctttt ccaagtgcag tgcacacctc attgcattca gcccgctctc ccagtcatca   720
242 cggtcaggtt tctgaatcaa agaaacatgt caattcatct gcag                     764
```

```
        244 <210> SEQ ID NO: 11
        245 <211> LENGTH: 2045
        246 <212> TYPE: DNA
        247 <213> ORGANISM: Artificial Sequence
        249 <220> FEATURE:
        250 <223> OTHER INFORMATION: Vector sequence
W--> 252 <221> NAME/KEY: CDS
        253 <222> LOCATION: (1132)...(1279)
W--> 255 <221> CDS
        256 <222> LOCATION: (1495)...(1622)
W--> 258 <221> CDS
        259 <222> LOCATION: (1715)...(1873)
W--> 261 <221> misc_feature
        262 <222> LOCATION: (1)...(2045)
        263 <223> OTHER INFORMATION: n = A,T,C or G
W--> 265 <400> 11
        266 atctgtccat ggtgagtgcg gcctggcctt tggcggggcg gaaagagggt gcggcctggc      60
        267 ctcccttggg ccacttggtg agctggcgga gggtgggttg gggcgtggcc tgctgcgggc     120
        268 ttccccgcct tccagcgccc ttctggaaaa tggagtttgt ccggggttct ttccaaaggc     180
        269 aggcagccct gccgtggcaa gtctgagcac ctagcgcttt gtggctcctg catagaccag     240
        270 gcacgtcata acacccgtgt tttgaagcct tagggctgta caactgtcag cctctccaat     300
        271 caaccctgca gttaggtgca ttttcctgca ctctcgtccc ctccggtcac atggcctgca     360
        272 ggcttctctg tttgggtgta catccagctc cagttcctct gactatggcg ggtctgcttg     420
        273 gtcatggtgt ggaatggcag ccctggggct tggtacaaag aggcttatct cttgtgaact     480
        274 tactctaacc acttctgaag cagcggcctc tacatctctg cttatcacag agcctcactt     540
        275 gcattgaaac ttatcgctag gaatctcccc ttctgtaatc accctgacct tgccaaggca     600
        276 tctagagtac tgtacgtttt taatttttat tttgcaccag ttgttgctta ctaacagaag     660
        277 tagtaggtaa catacttgtt ggaaaaagcc cacggttggg aaaaaaccat tatcgtggaa     720
        278 tacaaataca ctgagtgcct aaaactgaaa atcaaagctt ctcccaatgt atttgtgcta     780
        279 aaatacaatg ccctcagttc ttaaccaggt aatcagcagt tggctgtcta gctgaaaacc     840
        280 ttgagacctt gtgttaacca ttttttttat ttaacatgat tgttgaagga gagaattgac     900
        281 ctcccaatgt agggcacttt agcacccccc ctctcagaca aatagatatg gccttggctt     960
        282 aaagtttttt ctctgcacta atgtggagcc atagaaccct tgataaagcc aagtcccaag    1020
        283 tttgttttcc catccttact ttaaaggcca agtagggtga caaacagcct ttaccaccat    1080
        284 tgcatctgcc ttgctgtggg gatcaataac aaatacccct tccactttca g tct tgt    1137
        285                                                         Ser Cys
        286                                                           1
        288 tat ttt gac cgg gat gat gtg gcc ctg aag aac ttt gcc aaa tac ttt    1185
        289 Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe
        290         5                   10                  15
        292 ctc cat caa tct cat gaa gag agg gaa cat gct gag aaa ctg atg aag    1233
        293 Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys
        294     20                  25                  30
        296 ctg cag aac cag cga ggt gga cga atc ttc ctg cag gat atc aag g      1279
        297 Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys
        298 35                  40                  45
W--> 300 taagtagact atgggactgc gttaaatgag cagtnnnnnn nnnnnnnnnn nnnnnnnnnn    1339
W--> 301 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn    1399
W--> 302 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn    1459
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 02/09/2006
PATENT APPLICATION: US/10/532,197   TIME: 18:29:58

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF4\02092006\J532197.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:11; N Pos. 1314,1315,1316,1317,1318,1319,1320,1321,1322,1323,1324,1325
Seq#:11; N Pos. 1326,1327,1328,1329,1330,1331,1332,1333,1334,1335,1336,1337
Seq#:11; N Pos. 1338,1339,1340,1341,1342,1343,1344,1345,1346,1347,1348,1349
Seq#:11; N Pos. 1350,1351,1352,1353,1354,1355,1356,1357,1358,1359,1360,1361
Seq#:11; N Pos. 1362,1363,1364,1365,1366,1367,1368,1369,1370,1371,1372,1373
Seq#:11; N Pos. 1374,1375,1376,1377,1378,1379,1380,1381,1382,1383,1384,1385
Seq#:11; N Pos. 1386,1387,1388,1389,1390,1391,1392,1393,1394,1395,1396,1397
Seq#:11; N Pos. 1398,1399,1400,1401,1402,1403,1404,1405,1406,1407,1408,1409
Seq#:11; N Pos. 1410,1411,1412,1413,1414,1415,1416,1417,1418,1419,1420,1421
Seq#:11; N Pos. 1422,1423,1424,1425,1426,1427,1428,1429,1430,1431,1432,1433
Seq#:11; N Pos. 1434,1435,1436,1437,1438,1439,1440,1441,1442,1443,1444,1445
Seq#:11; N Pos. 1446,1447,1448,1449,1450,1451,1452,1453,1454,1455,1456,1457
Seq#:11; N Pos. 1458,1459,1460,1461,1462,1463
Seq#:34; N Pos. 4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24
Seq#:36; N Pos. 1,2,3,4,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29
Seq#:36; N Pos. 30,31,32,33
Seq#:38; N Pos. 10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27

VERIFICATION SUMMARY   DATE: 02/09/2006
PATENT APPLICATION: **US/10/532,197**   TIME: 18:29:58

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
L:13  M:270 C: Current Application Number differs, Replaced Current Application No
L:13  M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:152 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:7
L:252 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:255 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:258 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:261 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:265 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:300 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1279
L:301 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1339
L:302 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1399
L:303 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1459
L:304 M:361 W: Invalid Split Codon, Sequence data for SEQ ID#: 11
L:695 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:699 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:34
L:700 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0
L:721 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:725 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:726 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0
L:747 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:751 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:38
L:752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
```

Raw Sequence Listing before editing (for reference only)

RAW SEQUENCE LISTING   DATE: 02/09/2006
PATENT APPLICATION: US/10/532,197   TIME: 18:20:36

        Input Set : A:\PTO.AMC.txt
        Output Set: N:\CRF4\02092006\J532197.raw

```
   4 <110> APPLICANT: Biogen Idec MA Inc.
   5         Prentice, Holly
   7 <120> TITLE OF INVENTION: HIGH EXPRESSION LOCUS VECTOR BASED ON
   8         FERRITIN HEAVY CHAIN GENE LOCUS
  11 <130> FILE REFERENCE: 2159.058PC01/EKS/LMB
C--> 13 <140> CURRENT APPLICATION NUMBER: US/10/532,197
C--> 13 <141> CURRENT FILING DATE: 2005-04-21
  13 <150> PRIOR APPLICATION NUMBER: PCT/US2003/033433
  14 <151> PRIOR FILING DATE: 2003-10-22
  16 <150> PRIOR APPLICATION NUMBER: US 60/421,252
  17 <151> PRIOR FILING DATE: 2002-10-24
  19 <160> NUMBER OF SEQ ID NOS: 41
  21 <170> SOFTWARE: FastSEQ for Windows Version 4.0
  23 <210> SEQ ID NO: 1
  24 <211> LENGTH: 563
  25 <212> TYPE: DNA
  26 <213> ORGANISM: Rattus norvegicus
  28 <220> FEATURE:
  29 <221> NAME/KEY: CDS
  30 <222> LOCATION: (346)...(459)
  32 <400> SEQUENCE: 1
  33 agctcagaga cccaagagcc gcctcacaat cacacaggct cctccccgcc cacgcactgc    60
  34 tggcttgggc aacacgccta caggaagagg cggggctggg cggcccaccg cgctgattgg   120
  35 ccggagcgcg cctgacgcag gatcccgcta taaagtgcgg cccgctggtc cctacgccag   180
  36 acgttctcgc ccagagtcgc cgcggtttcc tgcttcaaca gtgcttgaac ggaacccggt   240
  37 gctcgacccc tccgaccccc gtccggccgc tttgagcctg agccctttgc aacttcgtcg   300
  38 ctccgccgct ccagcgtcgc ctccgcgcct cgtccagccg ccatc atg acc acc gcg   357
  39                                                    Met Thr Thr Ala
  40                                                     1
  42 tct ccc tcg caa gtg cgc cag aac tac cac cag gac tcg gag gct gcc    405
  43 Ser Pro Ser Gln Val Arg Gln Asn Tyr His Gln Asp Ser Glu Ala Ala
  44  5               10              15                  20
  46 atc aac cgc cag atc aac ctg gag ttg tat gcc tcc tac gtc tat ctg    453
  47 Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser Tyr Val Tyr Leu
  48            25              30                  35
  50 tcc atg gtgagtgcgg cctggccttt gcggggggcgg aaagagggtg cggcctggcc   509
  51 Ser Met
  54 tcccttgggc cacttggtga gctggcggag ggtgggttgg ggcgtggctg cggg        563
  56 <210> SEQ ID NO: 2
  57 <211> LENGTH: 38
  58 <212> TYPE: PRT
  59 <213> ORGANISM: Rattus norvegicus
  61 <400> SEQUENCE: 2
```

Does Not Comply
Corrected Diskette Needed

RAW SEQUENCE LISTING   DATE: 02/09/2006
PATENT APPLICATION: US/10/532,197   TIME: 18:20:36

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
62 Met Thr Thr Ala Ser Pro Ser Gln Val Arg Gln Asn Tyr His Gln Asp
63 1               5                   10                  15
64 Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser
65             20              25                  30
66 Tyr Val Tyr Leu Ser Met
67         35
69 <210> SEQ ID NO: 3
70 <211> LENGTH: 563
71 <212> TYPE: DNA
72 <213> ORGANISM: Rattus norvegicus
74 <400> SEQUENCE: 3
75 cccgcagcca cgccccaacc caccctccgc cagctcacca agtggcccaa gggaggccag      60
76 gccgcaccct ctttccgccc ccgcaaaggc caggccgcac tcaccatgga cagatagacg     120
77 taggaggcat acaactccag gttgatctgg cggttgatgg cagcctccga gtcctggtgg     180
78 tagttctggc gcacttgcga gggagacgcg gtggtcatga tggcggctgg acgaggcgcg     240
79 gaggcgacgc tggagcggcg gagcgacgaa gttgcaaagg gctcaggctc aaagcggccg     300
80 gacgggggtc ggaggggtcg agcaccgggt tccgttcaag cactgttgaa gcaggaaacc     360
81 gcggcgactc tgggcgagaa cgtctggcgt agggaccagc gggccgcact ttatagcggg     420
82 atcctgcgtc aggcgcgctc cggccaatca gcgcggtggg ccgcccagcc ccgcctcttc     480
83 ctgtaggcgt gttgcccaag ccagcagtgc gtgggcgggg aggagcctgt gtgattgtga     540
84 ggcggctctt gggtctctga gct                                            563
86 <210> SEQ ID NO: 4
87 <211> LENGTH: 232
88 <212> TYPE: DNA
89 <213> ORGANISM: Rattus norvegicus
91 <220> FEATURE:
92 <221> NAME/KEY: CDS
93 <222> LOCATION: (51)...(197)
95 <400> SEQUENCE: 4
96 gcatctgcct tgctgtgggg atcaataaca aatacccttt ccactttcag tct tgt        56
97                                                            Ser Cys
98                                                            1
100 tat ttt gac cgg gat gat gtg gcc ctg aag aac ttt gcc aaa tac ttt      104
101 Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe
102         5                   10                  15
104 ctc cat caa tct cat gaa gag agg gaa cat gct gag aaa ctg atg aag      152
105 Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys
106         20              25                  30
108 ctg cag aac cag cga ggt gga cga atc ttc ctg cag gat atc aag          197
109 Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys
110 35              40                  45
112 gtaagtagac tatgggactg cgttaaatga gcagt                              232
114 <210> SEQ ID NO: 5
115 <211> LENGTH: 49
116 <212> TYPE: PRT
117 <213> ORGANISM: Rattus norvegicus
119 <400> SEQUENCE: 5
120 Ser Cys Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys
121 1               5                   10                  15
```

RAW SEQUENCE LISTING   DATE: 02/09/2006
PATENT APPLICATION: US/10/532,197   TIME: 18:20:36

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
122 Tyr Phe Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu
123             20                  25                  30
124 Met Lys Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile
125         35                  40                  45
126 Lys
129 <210> SEQ ID NO: 6
130 <211> LENGTH: 232
131 <212> TYPE: DNA
132 <213> ORGANISM: Rattus norvegicus
134 <400> SEQUENCE: 6
135 actgctcatt taacgcagtc ccatagtcta cttaccttga tatcctgcag gaagattcgt        60
136 ccacctcgct ggttctgcag cttcatcagt ttctcagcat gttccctctc ttcatgagat       120
137 tgatggagaa agtatttggc aaagttcttc agggccacat catcccggtc aaaataacaa       180
138 gactgaaagt ggaaagggta tttgttattg atccccacag caaggcagat gc              232
140 <210> SEQ ID NO: 7
141 <211> LENGTH: 764
142 <212> TYPE: DNA
143 <213> ORGANISM: Rattus norvegicus
145 <220> FEATURE:
146 <221> NAME/KEY: CDS
147 <222> LOCATION: (34)...(159)
149 <221> NAME/KEY: CDS
150 <222> LOCATION: (252)...(413)
```

W--> 152 <400> 7
```
153 ctgcagatga attgacatgt ttctttgatt cag aaa cct gac cgt gat gac tgg        54
154                                      Lys Pro Asp Arg Asp Asp Trp
155                                       1           5
157 gag agc ggg ctg aat gca atg agg tgt gca ctg cac ttg gaa aag agt       102
158 Glu Ser Gly Leu Asn Ala Met Arg Cys Ala Leu His Leu Glu Lys Ser
159         10                  15                  20
161 gtg aat cag tca cta ctg gaa ctt cac aaa ctg gct act gac aag aat       150
162 Val Asn Gln Ser Leu Leu Glu Leu His Lys Leu Ala Thr Asp Lys Asn
163         25                  30                  35
165 gat ccc cac gtgagtatca gaaacacggg gtgagtggag atgatttgcc             199
166 Asp Pro His
167  40
169 acagggcttg ggagagctga ccagtaaccc tgtcccatgt tctctttcct ag tta tgt       257
170                                                            Leu Cys
173 gac ttc att gag acg cat tac ctg aat gag cag gtg aaa tcc att aaa       305
174 Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys Ser Ile Lys
175 45                  50                  55                  60
177 gaa ctg ggt gac cac gtg acc aac tta cgc aag atg gga gcc cct gaa       353
178 Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly Ala Pro Glu
179                 65                  70                  75
181 tct ggc atg gca gaa tat ctc ttt gac aag cac acc ctg gga cac ggt       401
182 Ser Gly Met Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly His Gly
183             80                  85                  90
185 gat gag agc taa gctgacgtcc ccaaggccat gtgactttac tggctcactg          453
186 Asp Glu Ser  *
```

```
187          95
189 aggcagtgca tgcatgtcag gctgccttta tcttttctat aagttgcacc aaaacatctg   513
190 cttaaaagtt ctttaatttg taccatttct tcaaataaag aattttggta cccagctctt   573
191 gttgtgattg aggatgagcg caccagcttc ccttgcgtcg gctatataac cacactgcaa   633
192 cgcctgaaag aatatttatt aaactcgtag ttggggaaag atagtgaaag acaggtgtgt   693
193 tcagacagga ctaagcagtc ctggttctga gttacctgcc agactgccat gggaacatat   753
194 tcttgagtgt c                                                        764
196 <210> SEQ ID NO: 8
197 <211> LENGTH: 42
198 <212> TYPE: PRT
199 <213> ORGANISM: Rattus norvegicus
201 <400> SEQUENCE: 8
202 Lys Pro Asp Arg Asp Asp Trp Glu Ser Gly Leu Asn Ala Met Arg Cys
203 1               5                   10                  15
204 Ala Leu His Leu Glu Lys Ser Val Asn Gln Ser Leu Leu Glu Leu His
205             20                  25                  30
206 Lys Leu Ala Thr Asp Lys Asn Asp Pro His
207         35                  40
209 <210> SEQ ID NO: 9
210 <211> LENGTH: 53
211 <212> TYPE: PRT
212 <213> ORGANISM: Rattus norvegicus
214 <400> SEQUENCE: 9
215 Leu Cys Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys Ser
216 1               5                   10                  15
217 Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly Ala
218             20                  25                  30
219 Pro Glu Ser Gly Met Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly
220         35                  40                  45
221 His Gly Asp Glu Ser
222     50
224 <210> SEQ ID NO: 10
225 <211> LENGTH: 764
226 <212> TYPE: DNA
227 <213> ORGANISM: Rattus norvegicus
229 <400> SEQUENCE: 10
230 gacactcaag aatatgttcc catggcagtc tggcaggtaa ctcagaacca ggactgctta   60
231 gtcctgtctg aacacacctg tctttcacta tctttcccca actacgagtt taataaatat   120
232 tctttcaggc gttgcagtgt ggttatatag ccgacgcaag ggaagctggt gcgctcatcc   180
233 tcaatcacaa caagagctgg gtaccaaaat tctttatttg aagaaatggt acaaattaaa   240
234 gaactttaa gcagatgttt tggtgcaact tatagaaaag ataaaggcag cctgacatgc   300
235 atgcactgcc tcagtgagcc agtaaagtca catggccttg gggacgtcag cttagctctc   360
236 atcaccgtgt cccagggtgt gcttgtcaaa gagatattct gccatgccag attcaggggc   420
237 tcccatcttg cgtaagttgg tcacgtggtc acccagttct ttaatggatt tcacctgctc   480
238 attcaggtaa tgcgtctcaa tgaagtcaca taactaggaa agagaacatg ggacagggtt   540
239 actggtcagc tctcccaagc cctgtggcaa atcatctcca ctcaccccgt gtttctgata   600
240 ctcacgtggg gatcattctt gtcagtagcc agttgtgaa gttccagtag tgactgattc    660
241 acactctttt ccaagtgcag tgcacacctc attgcattca gcccgctctc ccagtcatca   720
242 cggtcaggtt tctgaatcaa agaaacatgt caattcatct gcag                    764
```

RAW SEQUENCE LISTING   DATE: 02/09/2006
PATENT APPLICATION: US/10/532,197   TIME: 18:20:36

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
      244 <210> SEQ ID NO: 11
      245 <211> LENGTH: 2045
      246 <212> TYPE: DNA
      247 <213> ORGANISM: Artificial Sequence
      249 <220> FEATURE:
      250 <223> OTHER INFORMATION: Vector sequence
W-->  252 <221> NAME/KEY: CDS
      253 <222> LOCATION: (1132)...(1279)
W-->  255 <221> CDS
      256 <222> LOCATION: (1495)...(1622)
W-->  258 <221> CDS
      259 <222> LOCATION: (1715)...(1873)
W-->  261 <221> misc_feature
      262 <222> LOCATION: (1)...(2045)
      263 <223> OTHER INFORMATION: n = A,T,C or G
W-->  265 <400> 11
      266 atctgtccat ggtgagtgcg gcctggcctt tggcggggcg gaaagagggt gcggcctggc     60
      267 ctcccttggg ccacttggtg agctggcgga gggtgggttg gggcgtggcc tgctgcgggc    120
      268 ttccccgcct tccagcgccc ttctggaaaa tggagtttgt ccggggttct ttccaaaggc    180
      269 aggcagccct gccgtggcaa gtctgagcac ctagcgcttt gtggctcctg catagaccag    240
      270 gcacgtcata acacccgtgt tttgaagcct tagggctgta caactgtcag cctctccaat    300
      271 caaccctgca gttaggtgca ttttcctgca ctctcgtccc ctccggtcac atggcctgca    360
      272 ggcttctctg tttgggtgta catccagctc cagttcctct gactatggcg ggtctgcttg    420
      273 gtcatggtgt ggaatggcag ccctgggggct tggtacaaag aggcttatct cttgtgaact    480
      274 tactctaacc acttctgaag cagcggcctc tacatctctg cttatcacag agcctcactt    540
      275 gcattgaaac ttatcgctag gaatctcccc ttctgtaatc accctgacct tgccaaggca    600
      276 tctagagtac tgtacgtttt taattttat tttgcaccag ttgttgctta ctaacagaag    660
      277 tagtaggtaa catacttgtt ggaaaaagcc cacggttggg aaaaaaccat tatcgtggaa    720
      278 tacaaataca ctgagtgcct aaaactgaaa atcaaagctt ctcccaatgt atttgtgcta    780
      279 aaatacaatg ccctcagttc ttaaccaggt aatcagcagt tggctgtcta gctgaaaacc    840
      280 ttgagacctt gtgttaacca tttttttat ttaacatgat tgttgaagga gagaattgac    900
      281 ctcccaatgt agggcacttt agcacccccc ctctcagaca aatagatatg gccttggctt    960
      282 aaagtttttt ctctgcacta atgtggagcc atagaaccct tgataaagcc aagtcccaag   1020
      283 tttgttttcc catccttact ttaaaggcca agtagggtga caaacagcct ttaccaccat   1080
      284 tgcatctgcc ttgctgtggg gatcaataac aaatacccct tccactttca g tct tgt   1137
      285                                                       Ser Cys
      286                                                         1
      288 tat ttt gac cgg gat gat gtg gcc ctg aag aac ttt gcc aaa tac ttt   1185
      289 Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe
      290         5                   10                  15
      292 ctc cat caa tct cat gaa gag agg gaa cat gct gag aaa ctg atg aag   1233
      293 Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys
      294         20                  25                  30
      296 ctg cag aac cag cga ggt gga cga atc ttc ctg cag gat atc aag g     1279
      297 Leu Gln Asn Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys
      298 35                  40                  45
W-->  300 taagtagact atgggactgc gttaaatgag cagtnnnnnn nnnnnnnnnn nnnnnnnnnn   1339
W-->  301 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   1399
W-->  302 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn   1459
```

```
                              Lys Pro Asp Arg Asp Asp
                              50                  55

tgg gag agc ggg ctg aat gca atg agg tgt gca ctg cac ttg gaa aag      1562
Trp Glu Ser Gly Leu Asn Ala Met Arg Cys Ala Leu His Leu Glu Lys
              60  60              65  65              70  70
```

misaligned numbering began here and continued throughout the sequence

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:11; N Pos. 1314,1315,1316,1317,1318,1319,1320,1321,1322,1323,1324,1325
Seq#:11; N Pos. 1326,1327,1328,1329,1330,1331,1332,1333,1334,1335,1336,1337
Seq#:11; N Pos. 1338,1339,1340,1341,1342,1343,1344,1345,1346,1347,1348,1349
Seq#:11; N Pos. 1350,1351,1352,1353,1354,1355,1356,1357,1358,1359,1360,1361
Seq#:11; N Pos. 1362,1363,1364,1365,1366,1367,1368,1369,1370,1371,1372,1373
Seq#:11; N Pos. 1374,1375,1376,1377,1378,1379,1380,1381,1382,1383,1384,1385
Seq#:11; N Pos. 1386,1387,1388,1389,1390,1391,1392,1393,1394,1395,1396,1397
Seq#:11; N Pos. 1398,1399,1400,1401,1402,1403,1404,1405,1406,1407,1408,1409
Seq#:11; N Pos. 1410,1411,1412,1413,1414,1415,1416,1417,1418,1419,1420,1421
Seq#:11; N Pos. 1422,1423,1424,1425,1426,1427,1428,1429,1430,1431,1432,1433
Seq#:11; N Pos. 1434,1435,1436,1437,1438,1439,1440,1441,1442,1443,1444,1445
Seq#:11; N Pos. 1446,1447,1448,1449,1450,1451,1452,1453,1454,1455,1456,1457
Seq#:11; N Pos. 1458,1459,1460,1461,1462,1463
Seq#:34; N Pos. 4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24
Seq#:36; N Pos. 1,2,3,4,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29
Seq#:36; N Pos. 30,31,32,33
Seq#:38; N Pos. 10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27

VERIFICATION SUMMARY   DATE: 02/09/2006
PATENT APPLICATION: **US/10/532,197**   TIME: 18:20:37

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF4\02092006\J532197.raw**

```
L:13  M:270 C: Current Application Number differs, Replaced Current Application No
L:13  M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:152 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:7
L:252 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:255 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:258 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:261 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:265 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:11
L:300 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1279
L:301 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1339
L:302 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1399
L:303 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1459
L:304 M:361 W: Invalid Split Codon, Sequence data for SEQ ID#: 11
L:309 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:313 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:317 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:325 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:329 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:333 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:337 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:11
L:695 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:699 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:34
L:700 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0
L:721 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:725 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:36
L:726 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0
L:747 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:751 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:38
L:752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
```